The attached Appendix includes marked-up copies of each rewritten claim (37 C.F.R. §1.121(c)(1)(ii)).

Applicants appreciate the courtesies extended to Applicants' representatives by Primary Examiner Tarazano at the May 12, 2003 personal interview. The points discussed are incorporated into the following remarks.

I. The Claims Define Allowable Subject Matter

The Office Action rejects claims 1-3, 5-15 and 17-40 under 35 U.S.C. §103(a) over U.S. Patent No. 5,895,692 to Shirasaki et al. (hereinafter "Shirasaki"); and claims 4 and 16 under 35 U.S.C. §103 over Shirasaki in of U.S. Patent No. 5,317,169 to Nakano et al. (hereinafter "Nakano"). The rejections are respectfully traversed.

Shirasaki, alone or in combination with Nakano, fails to teach or suggest a method of manufacturing an organic EL device comprising, inter alia, forming at least one luminescent layer having a certain color and made of an organic compound on or above first electrodes by an ink-jet method, the formation of at least one luminescent layer by means of the ink-jet method being performed by discharging a luminescent material composition from a nozzle toward the substrate and onto an underlying layer, the underlying layer constituting a different layer relative to the at least one luminescent layer, the luminescent material composition serving as luminescence function and carrier transfer function in the formed at least one luminescent layer, as claimed in independent claim 1, and similarly recited in independent claims 13, 25, 30 and 36.

As pointed out to, and agreed by Examiner Tarazano at the May 12, 2003 personal interview, Shirasaki, at col. 7, lines 3-7, 15-21, and Figures 6A, 6B, 7A and 7B, discloses that

> a material for the hole transport layer such as poly-N-vinylcarbazole (PVCZ) [is] made a layer by the wet process such as the spin coating or dip coating or by the vapor deposition on the transparent electrodes 12 to provide the hole transport layer 16.

> the fluorescent pigment R being capable of emitting red luminescent color, the fluorescent pigment G being capable of emitting green luminescent color and the fluorescent pigment B being capable of emitting blue luminescent color are separately applied by the screen printing or ink-jetting to the hole transport layer 16.
>
> (emphasis added)

Thus, in Shirasaki, only the luminescent pigments R, G and B having a luminescence function are provided by an ink-jet method, while the portion serving as carrier transfer function in the formed luminescent layer, i.e., the hole transport layer 16, is formed using a wet process or a vapor deposition process.

This is different than the recited feature of forming at least one luminescent layer by means of the ink-jet method by discharging a luminescent material composition from a nozzle toward the substrate and onto an underlying layer, the luminescent material composition serving as luminescence function and carrier transfer function in the formed at least one luminescent layer, as claimed in independent claim 1, and similarly recited in independent claims 13, 25, 30 and 36.

Further, Shirasaki, at col. 6, line 60 to col. 7, line 54, and in Figures 1, 7B and 8B, discloses that fluorescent pigments (R, G, B) are discharged on the hole transport layer 16, the fluorescent pigments R, G, B are heated using an infrared ray lamp or a hot plate. The heating of the fluorescent pigments R, G, B causes the fluorescent pigments to diffuse into the hole transport layer 16, and form luminescent layer portions 13a, 13b, 13c in the luminescent layer 13 after the diffusion step is completed.

This is different than the claimed invention, as claimed in independent claims 1, 13, 25, 30 and 36, where a luminescent layer is formed on the underlying layer using an ink jet method. There is no diffusion step being performed in the claimed invention.

Nagano does not make up for the deficiencies discussed above.

For at least these reasons, it is respectfully submitted that independent claims 1, 13, 25, 30 and 36 are distinguishable over the applied art. Claims 2-11, 14-24, 26-29, 31-35 and 37-40, which depend from independent claims 1, 13, 25, 30 and 36, are likewise distinguishable over the applied art for at least the reasons discussed above. Withdrawal of the rejection of claims 1-40 under 35 U.S.C. §103 is respectfully requested.

Applicants also submit that new claims 41-49 are distinguishable over the applied for at least the reasons discussed above as well as for additional features they recite.

II. Conclusion

For at least the reasons discussed above, it is respectfully submitted that this application is in condition for allowance.

Should the Examiner believe that anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed above.

Respectfully submitted,

James A. Oliff
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JAO:GPS/dmw

Attachments:
Amendment Transmittal
Appendix
Petition for Extension of Time

Date: May 15, 2003

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION
Please grant any extension necessary for entry;
Charge any fee due to our Deposit Account No. 15-0461

APPENDIX

Changes to Claims:

The following are marked-up versions of the amended claims:

1. (~~Twice~~ Thrice Amended) A method of manufacturing an organic EL device, comprising ~~the steps of~~:

forming first electrodes on or above a substrate;

forming at least one luminescent layer having a certain color and made of an organic compound on or above first electrodes by ~~patterning~~an ink-jet method~~, said at least one luminescent layer including a plurality of pixel luminescent layers respectively provided on or above the predetermined first electrodes~~; and

forming a second electrode opposing the first electrodes,

the formation of said at least one luminescent layer ~~being performed~~ by means of ~~an~~ the ink-jet method ~~so that a thus formed luminescent layer can be used as a final pattern in which the respective pixel luminescent layers of the luminescent layer have a predetermined shape and are arranged in a predetermined order, the formation of the at least one luminescent layer~~ being performed by discharging a luminescent material composition ~~at least a part of which becomes the at least one luminescent layer~~ from a nozzle toward the substrate and onto an underlying layer ~~so as to form the at least one luminescent layer on the underlying layer~~, the underlying layer constituting a different layer relative to the at least one luminescent layer, the luminescent material composition serving as luminescence function and carrier transfer function in the formed at least one luminescent layer.

13. (~~Twice~~ Thrice Amended) An organic EL device manufactured via a nozzle, comprising:

a substrate;

first electrodes provided on or above the substrate;

~~an underlying layer;~~

at least one luminescent layer, each of which ~~includes a plurality of pixel luminescent layers respectively formed on or above predetermined first electrodes and each of which~~ has a certain color and is made of an organic compound, the luminescent layers being formed above the first electrodes by patterning by means of an ink-jet system ~~so that a thus formed luminescent layer can be used as a final pattern in which the respective pixel luminescent layers of the luminescent layer have a predetermined shape and are arranged in a predetermined order~~, the formation of the at least one luminescent layer being performed by discharging a luminescent material composition ~~at least a part of which becomes the at least one luminescent layer~~ from the nozzle toward the substrate and onto ~~the~~ an underlying layer ~~so as to form the at least one luminescent layer on the underlying layer~~, the underlying layer constituting a different layer relative to the at least one luminescent layer, the luminescent material composition serving as luminescence function and carrier transfer function in the formed at least one luminescent layer; and

a second electrode formed on or above the luminescent layers.

19. (~~Twice~~ Thrice Amended) The organic EL device as claimed in claim ~~13~~18, wherein the blue luminescent layer is formed by a vacuum deposition method.

25. (Twice Amended) A method of manufacturing an organic EL device, comprising ~~the steps of~~:

forming first electrodes on or above a substrate;

forming three types of luminescent layers on or above said first electrodes by patterning, each of said luminescent layers having a certain color and made of an organic compound~~, and including respectively a plurality of pixel luminescent layers formed on or above predetermined first electrodes~~; and

forming a second electrode opposing the first electrodes,

the formation of the at least two types of the luminescent layers being performed by means of an ink-jet method, ~~so that thus formed luminescent layers can be used as a final pattern in which the respective pixel luminescent layers of the luminescent layers have substantially a predetermined shape and are arranged in a predetermined order, the formation of the at least two of the luminescent layers being performed by~~ the ink-jet method including discharging a luminescent material composition ~~at least a part of which becomes the at least two of the luminescent layers~~ from a nozzle toward the substrate and onto an underlying layer ~~so as to form the at least two of the luminescent layers on the underlying layer~~, the underlying layer constituting a different layer relative to the at least two types of the luminescent layers, the luminescent material composition serving as luminescence function and carrier transfer function in the formed at least two types of luminescent layers.

26. (Twice Amended) The method as claimed in claim 25, said three types of the luminescent layers have ~~three~~ different colors, respectively, and at least two types of the luminescent layers in the three luminescent layers being formed by patterning by means of the ink-jet method.

30. (Twice Amended) A method of manufacturing an organic EL device, comprising ~~the steps of~~:

forming first electrodes on or above a substrate;

forming a first luminescent layer having a first color and made of a first organic compound above first predetermined first electrodes by ~~patterning;~~an ink-jet method and

forming a second electrode opposing the first electrodes,

the formation of said first luminescent layer ~~being performed~~ by means of ~~an~~ the ink-jet method ~~so that thus formed luminescent layer can be used as a final pattern in which the luminescent layer above the predetermined first electrodes has substantially a~~

~~predetermined shape and is arranged in a predetermined order, the formation of the at least one luminescent layer~~ being performed by discharging a luminescent material composition ~~at least a part of which becomes the at least one luminescent layer~~ from a nozzle toward the substrate and onto an underlying layer ~~so as to form the at least one luminescent layer on the underlying layer~~, the underlying layer constituting a different layer relative to the ~~at least one~~first luminescent layer, the luminescent material composition serving as luminescence function and carrier transfer function in the formed first luminescent layer.

31. (Twice Amended) The method as claimed in claim 30, further comprising ~~a step of~~ forming a second luminescent layer having a second color which is different from the first color and made of a second organic compound on or above second predetermined first electrodes in the first electrodes, respectively, by ~~patterning~~an ink-jet method~~,~~

~~the formation of said second luminescent layer is performed by means of the ink-jet method so that thus formed second luminescent layer can be used as a final pattern in which the respective second luminescent layers on or above the respective second first electrodes have a predetermined shape and is arranged in a predetermined order~~.

32. (Twice Amended) The method as claimed in claim 31, further comprising ~~a step of~~ forming a third luminescent layer having a third color that is different from the first and second colors and made of a third organic compound on or above third predetermined first electrodes in the first electrodes, respectively, ~~the formation of the third luminescent layer being carried out~~ by the ink-jet method.

36. (Twice Amended) An organic EL device manufactured via a nozzle, comprising:

a substrate;

first electrodes provided on or above the transparent substrate, said first electrodes include first first electrodes, second first electrodes and third first electrodes that are arranged in a predetermined order;

~~an underlying layer;~~

first, second and third luminescent layers respectively formed on or above the first, second and third predetermined first electrodes, in which said first, second and third luminescent layers have first, second and third colors, respectively, and are made of first, second and third organic compounds, respectively, at least the first luminescent layer formed above the first first electrodes by patterning by means of an ink-jet system ~~so that thus formed first luminescent layer can be used as a final pattern in which the respective first luminescent layers above the first first electrodes have a predetermined shape and are arranged in a predetermined order~~, the formation of the first luminescent layer being performed by discharging a luminescent material composition ~~at least a part of which becomes the first luminescent layer~~ from the nozzle toward the substrate and onto ~~the~~ an underlying layer ~~so as to form the first luminescent layer on the underlying layer~~, the underlying layer constituting a different layer relative to the first luminescent layer, the luminescent material composition serving as luminescence function and carrier transfer function in the formed first luminescent layer; and

a second electrode formed on or above the luminescent layers.

37. (Twice Amended) The organic EL device as claimed in claim 36, the formation of said second luminescent layer being performed by means of the ink-jet system ~~so that thus formed second luminescent layers can be used as a final pattern in which the respective luminescent layer on or above the respective second first electrodes have substantially a predetermined shape and are arranged in a predetermined order~~.

Claims 41-49 are added.